REMARKS

Claims 1-20 are pending in the present application. Claim 19 is amended above. No new matter is added by the claim amendments. Entry is respectfully requested.

Attached hereto is a marked-up version of the changes made to the claims by the current Amendment. The attached page is captioned "**Version with Markings to Show Changes Made**".

Applicant notes, with appreciation, that the Office Action indicates at pages 5 and 6 that claims 9-12 are allowed. Applicant further notes that the Office Action indicates that claims 7-8 and 19-20 would be allowable if rewritten in independent form. Applicant wishes to differ submission of these claims pending consideration of the present Amendment.

Claims 19 and 20 stand objected to for informalities stated in the Office Action. Claim 19 is amended above in a manner consistent with suggestions provided in the Office Action. Entry of the amendment is respectfully requested.

Claims 1-5 and 13-17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabata *et al.* (U.S. 6,373,533 - hereinafter "Kawabata") in view of Hieda (U.S. 5,818,521). Claims 6 and 18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabata in view of Hieda and in further view of Kuo et al. (U.S. 5,982,929). It is requested that these rejections be reconsidered and removed in view of the following remarks.

The present invention as claimed in independent claim 1 is directed to a imaging apparatus. A first signal processing means partitions the level of an analog image signal into a plurality of sections, and amplifies the analog image signal by a plurality of gains according to each section, at least two of the sections having different corresponding gains. A second signal

processing means converts the analog image signal amplified by the different gains into a first digital signal, and non-linearly gamma-corrects the first digital signal according to each section.

The present invention as claimed in independent claim 13 is directed to a image signal processing method. The level of an analog image signal is partitioned into a plurality of sections, and amplified by a plurality of different gains according to each section, at least two of the sections having different corresponding gains. The image signal amplified by the plurality of different gains is converted into a first digital signal, and the first digital signal is non-linearly gamma-corrected according to each section.

In the present invention as claimed in independent claims 1 and 13, therefore, an "analog image signal" is amplified, for example by amplifier 107c of the first signal processing means 107, according to the plurality of different gains of the various respective sections. Following amplification, the analog image signal is converted to a digital signal, for example at the second analog-to-digital converter (ADC) 109a of the second signal processing means 109. Thus, in the present invention, amplification of the analog input signal is conducted in the analog domain.

Kawabata is directed to a tone correction circuit for correcting the tone of a video signal. Kawabata employs a histogram generator 1 and histogram correction circuit 3 for performing the correction (see Kawabata FIG. 1). The histogram created by the generator 1 is modified using an adjustable gain controller 2. As a histogram is employed, all signal processing, including amplification of the input signal "a", is performed in the digital domain, on a digital input signal "a". This is in contrast with the present invention of claims 1 and 13 in which the image signal of the first signal processing means (see FIG. 1,107) is an "analog image signal". Amplification in the present invention is thus performed in the analog domain on an "analog image signal". Following analog amplification, the present invention of claims 1 and 13 converts the amplified analog image signal to a "digital signal" and "non-linearly gamma-correct[s]" the digital signal,

in the digital domain.

Likewise, in Heida, there is no such amplification in the analog domain, of an "analog image signal".

Further, in Kawabata, the histogram correction circuit 3 (see Kawabata FIG. 1) amplifies or reduces (i.e. "adjusts") the histogram itself by a different adjustment value in each section (see Kawabata column 3, lines 50-57). In contrast, in the present invention, the first signal processing means amplifies the "analog image signal" by a different gain in each section. Kawabata thus fails to teach or suggest "amplifying the analog image signal by a different gain in each section" as claimed in claims 1 and 13.

In addition, in the present invention of claims 1 and 13, the same "plurality of sections" into which the "level of [the] analog image signal" is "partition[ed]" and used for amplification of the "analog image signal", are also used as the "sections" for gamma correction: "...for non-linearly gamma-correcting the first digital signal according to each section". This feature of using the same, common, sections for both amplification and gamma correction is illustrated, for example, in the line connecting the first ADC 107a and the gamma corrector 109b, of FIG. 1 of the present specification. Neither Hieda nor Kawabata, nor the combination teach the use of the same "sections" for both amplification and non-linear gamma correction in this manner.

Accordingly, reconsideration and removal of the rejections and allowance of independent claims 1 and 13 are therefore respectfully requested. With regard to the various dependent claims, it follows that these claims should inherit the allowability of the independent claims from which they depend.

Closing Remarks

It is submitted that all claims are in condition for allowance, and such allowance is respectfully requested. If prosecution of the application can be expedited by a telephone conference, the Examiner is invited to call the undersigned at the number given below.

Respectfully submitted,

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Mills & Onello, LLP
Eleven Beacon Street, Suite 605
Boston, MA 02108
Telephone: (617) 994-4900, Ext. 4902
Facsimile: (617) 742-7774
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Anthony P. Onello, Jr.
Registration Number 38,572
Attorney for Applicant

Version with Markings to Show Changes Made

In the Claims:

Claim 19 is amended above as follows:

19. The method of claim 18 [17], wherein controlling comprises:

passing a low-frequency component of the non-linearly gamma-corrected digital signal, to output a luminance signal;

partitioning the level of the luminance signal into a plurality of second sections, and selecting a corresponding second gain among a plurality of different second gains according to each second section;

passing a high-frequency component of the non-linearly gamma-corrected digital signal, to output a chrominance signal;

multiplying the chrominance signal by the corresponding selected second gain;

adding the result of the multiply to the luminance signal;

dividing the result of the add by approximately 2; and

clipping to 0 if the result of the division is less than 0, and clipping to the maximum value of the gamma-corrected digital signal if the result of the division is greater than the maximum value of the gamma-corrected digital signal, and outputting the result.